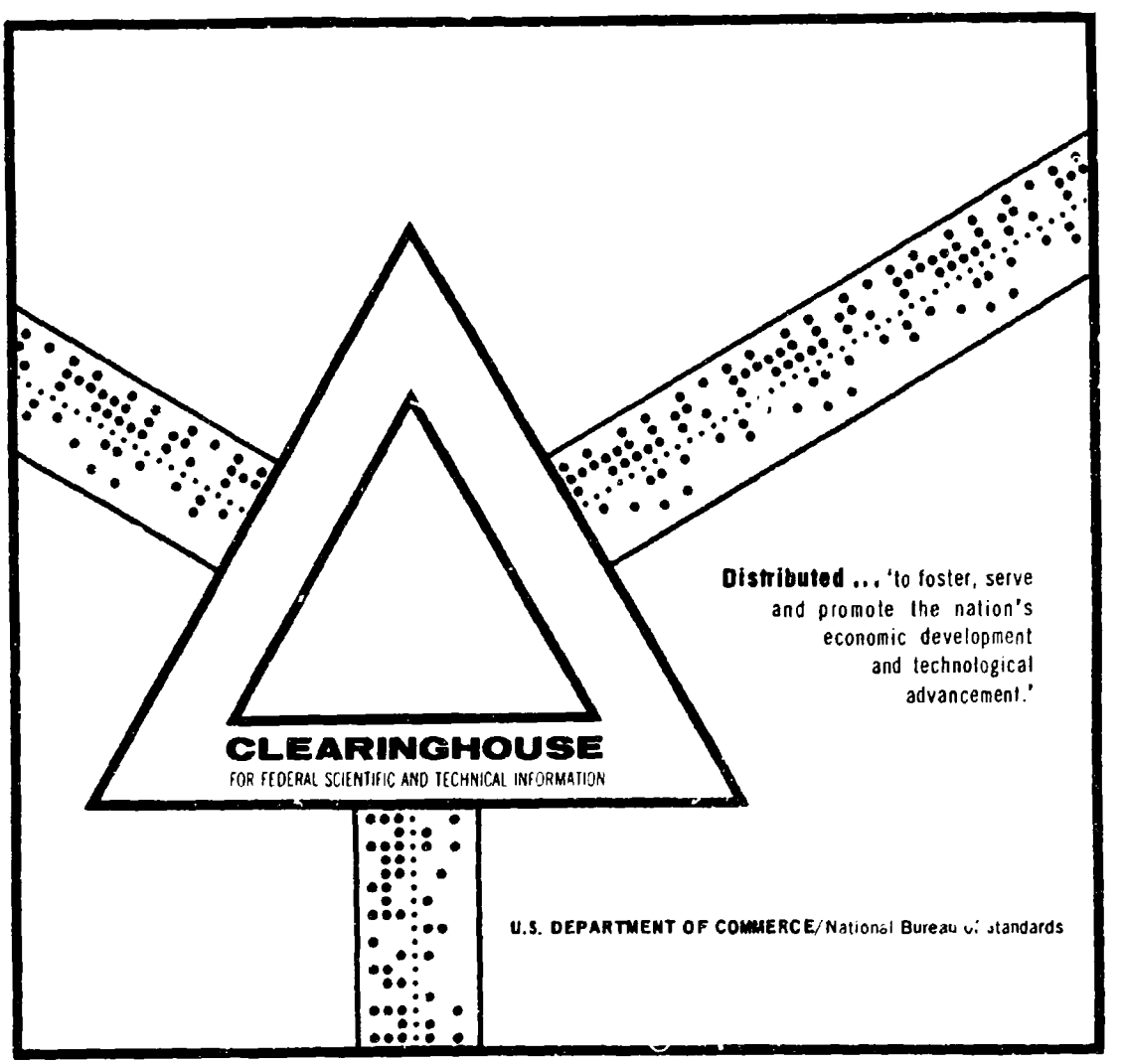
INFORMATIONAL MATERIALS ON HYDROMETEOROLOGICAL INSTRUMENTS AND OBSERVATION METHODS

A. A. Eliseev, et al

Army Foreign Science and Technology Center
Washington, D. C.

5 November 1969



FSTC-HT-23-634-69

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COUNTRY: USSR

TECHNICAL TRANSLATION

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INFORMATIONAL MATERIALS ON HYDROMETEOROLOGICAL INSTRUMENTS AND OBSERVATION METHODS

by
A. A. Yeliseyev
N. Ye. Zakhavchenko
Yu. A. Devyatov
A. P. Murav'ev
V. N. Pichugin
Zh. L. Dokhturov

SOURCE: NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT
GIDROMETEOROLOGICHESKOGO
PRIBOROSTROYENIYA
No. 33, pp. 40-42, 1967
USSR

Translated for FSTC by Techtran Corporation

All parts of the receiver except the sensor element, including both heat resistors, have maximum reflecting capability in the long wave and, as much as possible, in the short wave areas of the spector. The mounting and the heat resistors have a surface many times smaller than the surface of the discs. If the material of the discs is hygroscopic, they are covered with a film of some kind of known substance whose of field of absorption is less than 12 microns.

Selection of the material for the sensor element is determined in a simplified manner by a schematized spectrum of the absorption of the atmosphere received on the basis of an elsasser spectrum, and is characterized by the fact that the radiant flow of heat caused by absorption of all bands of the spectrum is taken into account with the aid of one band. The contour of this band, which has its center in the area around 50 microns, is changed so that it takes into account the absorption of all bands, including exceptional ones. Unlike the actual atmospheric spectrum, and also unlike known schematizations of it, the spectrum which is gotten can be modelled by a spectrum of the absorption of a number of known materials, for example, rock salt. Any such material should, in practice, not absorb radiation with a wavelength less than 12 microns and should fully absorb radiation a wavelength between 12 and 40 microns.

(Inventor's Certificate No. 188074, with a priority from 24 August 1964, assigned to A. A. Yeliseyev)

UDK 551.574.42:551.578.46

On Reducing the Components of Ice Measuring Machine

In addition to the primary assignment of the snow measuring rod on the ice measuring machine, making a recording of observations, when the snow cover reaches depths of 50, and 100 centimeters, this rod can be used to raise the wires to the appropriate altitudes. For this, two marks are put on the eastern side of the north beam 50 and 100 centimeters from the surface of the earth. When the snow cover reaches one of the marks, the machine wires are raised, and this is recorded in the "notes"

Carrying out this suggestion will fully insure the practical necessities and exclude the recording of superfluous information and unproductive expenditures on snow measuring work.

This proposal has been approved by the methods division of the Main Geophysical Observatory and was taken into consideration in reworking the Instructions, Chapter 3, Part 1.

N. Ye. Zakhavchenko (UGMS [Administration of Hydrometeorological Service] of Latvian SSR)

UDK 621.396.969.1

Expansion of Boundaries of Registering Range at the "Meteor" Station

In the course of investigating the atmosphere with the aid of the "Meteor" and "Meteorite" network of radar stations, at certain seasons it happens that the radiosonde removed to a distance of more than 150 km, which exceeds the register range. In regions with heavy winds this happens frequently. In order to increase the registered range of flight of the radiosonde, we propose the release of a sanitron pattern (MT-51) with starting impulses from a transmitter (MT12-2), taken from an L10 cathode. The reworking presents no difficulties. A tumbler, B1', (Figure 30) is just added to the pattern.

The method of operation in doing this is as follows:

1. With a range of less than 150 km B1' is in a position of 0 ÷ 150 km and the pattern works as usual.

2. With a range exceeding 150 km, the operator puts B1' in a position D + 30 km and with the aid of the handle of the range control column sets the scale on the division 120 km, bringing the dark sighting device into line with the pause in the radiosonde signals. The automatic registration of range and radiosonde data continues, but to the established range 30 km must be added.

3. With a range greater than 180 km B1' is in a position 0 - 150 km, and the range scale is in 0 position. 180 km must be added to the printed range.

When the tumbler B1' is in the position D + 30 km, a small (within the limits of the tube screen) shift of the darkened sighting device on the 2-kilometer scan takes place. This does not lead to an error, but in order to keep the darkened sighting device in the center of the 2-kilometer scan, a chain composed of R77' = R77, R75' = R75 and R78' = R78 (Figure 30) may be placed in the pattern of the 14-kilometer scan on the L17 lamp. In doing this, the indicator of the R77' potentiometer should be set so that the darkened sighting device is located in the center of the 2-kilometer scan (B1' is located in a position D + 30 km). The line AB is cut.

This suggestion makes it possible to continue the logging of the atmosphere by the "Meteor" Station when there are good signals from the RK3 radiosonde even where the slant range of the radiosonde exceeds 150 km. The suggestion is easy to carry out with a slight reworking in the MT-51 block, and may be recommended for use of the network of aerological stations

Yu. A. Devyatov, A. P. Murav'ev (Vevkhne-Volzhskiy UGMS)

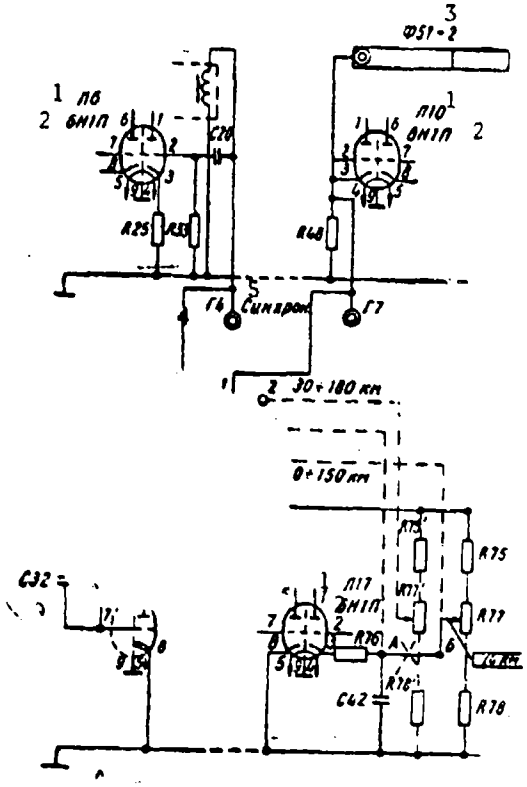

Figure 30. LEGEND: 1 L; 2 BN1P; 3 F; 4 G

Replacing the Ventilators in the Distance Measuring Attachment to the "Malachite" Radiotheodolite

This is a proposal to replace the ventilators of the "Malachite" radiotheodolite with every day ones. In the strut of the indicator instead of two ventilators one ordinary one is set up, and the second is set on the transmitter block. The ordinary ventilators are secured in the struts which have ventilators, which will have to be turned accordingly. Cut an opening of a diameter of 18 to 20 cm in the cover of the transmitter and in the indicator struts. As a result of this change in the "Malachite" radiotheodolite, noise and interference were reduced and it became much easier to take care of the ventilators.

Change in the ventilators for ordinary ones in an attachment to the "Malachite" radiotheodolite is perfectly permissible, but it is

UDK 21.396.969.1

necessary to choose ordinary ventilators with the same cubic capacity for air as the ventilators on the attachment.

V. N. Pichugin (Yakutsk UGMS)

UDK 621.394.625.222

Reworking the PO-15 Undulater

There are no 80-volt batteries at aerialogical stations. This creates difficulties in working with the PO-15 buzzer.

We propose a buzzer circuit (Figure 31) which works with a feeding source of 3 volts. The circuit can be fed from the rectifier of a PO-17 control panel or from the charge sheet of the "Malachite" radiotheodolite. In the circuit, tone is selected by a change in the capacity of the condenser. PP_1, PP_2 are triodes; Type P-15, P-14 or P-13 triodes may also be used.

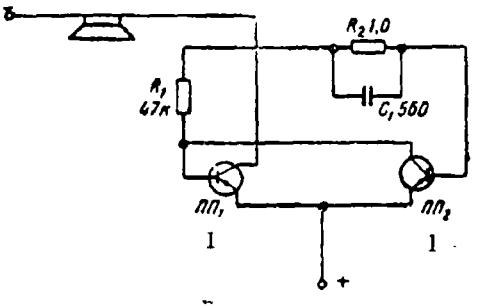

Figure 31. 1 PP

Zh. L. Dokhturov (Yakutsk UGMS)

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Foreign Science and Technology Center US Army Materiel Command Department of the Army	2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED 2b. GROUP

3. REPORT TITLE

Informational Materials on Hydrometeorological Instruments and Observation Methods

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

Translation

5. AUTHOR(S) (First name, middle initial, last name)

A. A. Yeliseyev, N. Ye. Zakhavchenko, Yu. A. Devyatov, A. P. Murav'ev, V. N. Pichugin, Zh. L. Dokhturov

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
5 November 69	5	N/A

8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO.	FSTC-HT-23-634-69
c. 02RD500 2301	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d. USAECOM (WSMR)	ACSI Control Number (None)

10. DISTRIBUTION STATEMENT

This document has been approved for public release and sale; its distribution is unlimited.

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
	US Army Foreign Science and Technology Center

13. ABSTRACT

Improvements in the operation and configuration of certain technical equipment used for meterological purposes is summarized. These improvements include revised adjustments for ice measuring machines, a modification to increase the range of measurement of radiosonde signals, a recommended change in theodolite ventilating fans and a revised buzzer circuit for the PO-15 undulator.

DD FORM 1 NOV 68 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Receiver Reflecting capability Long wave Radiation Components						

UNCLASSIFIED
Security Classification

* U. S. GOVERNMENT PRINTING OFFICE : 1969 391-033 (2148)